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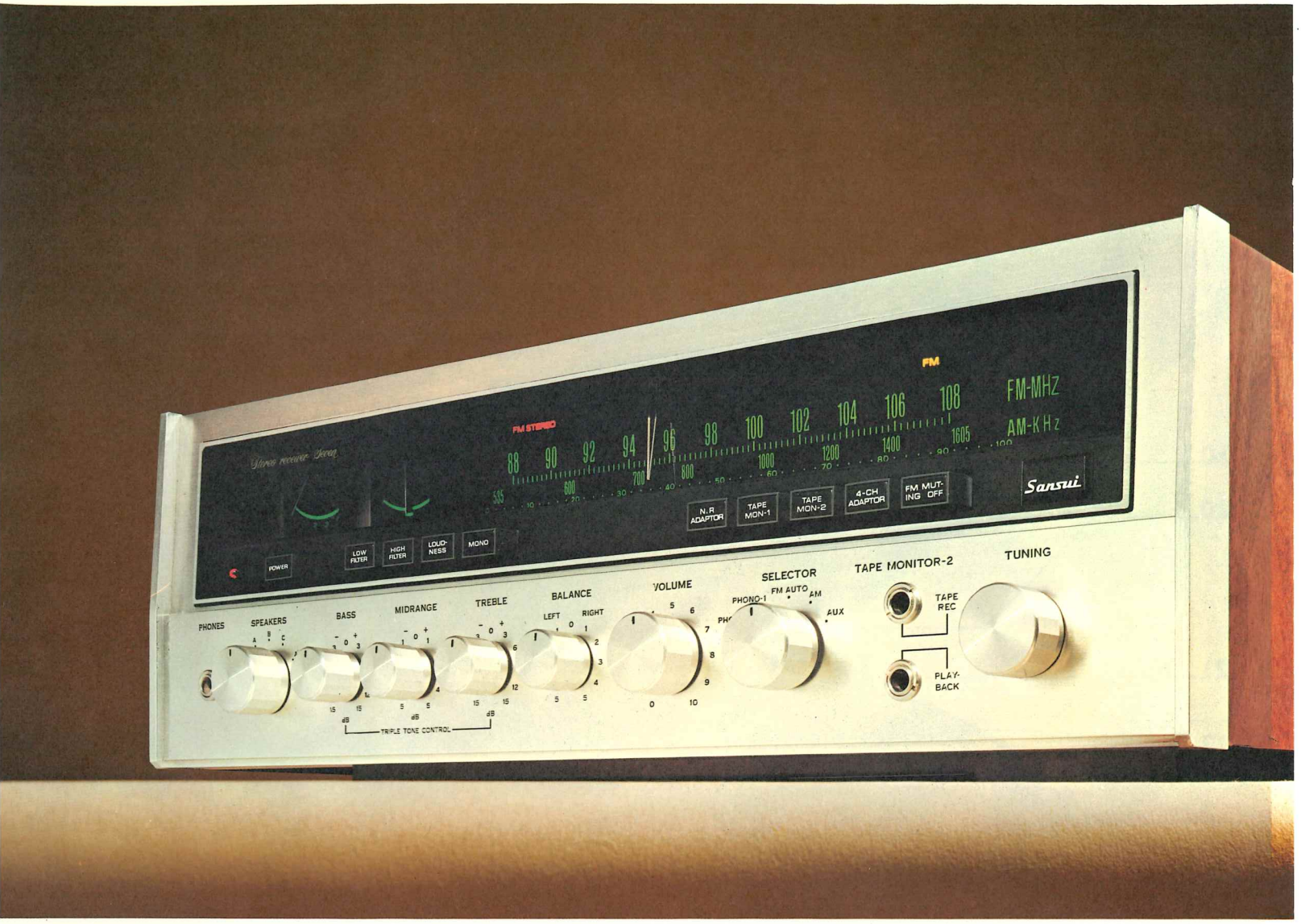
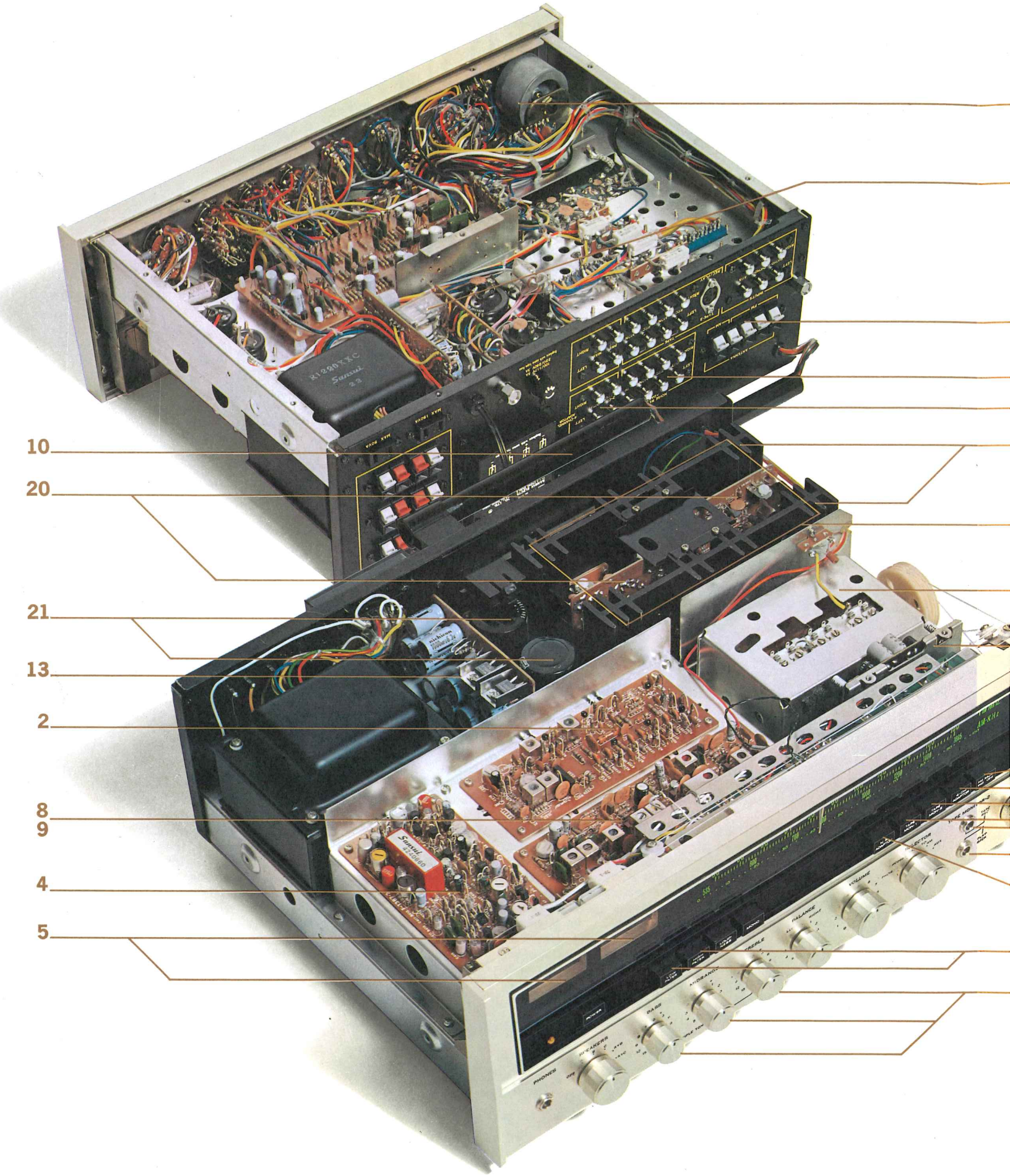
SANSUI SEVEN



AM/FM SOLID STATE STEREO RECEIVER This is the lucky SEVEN stereo receiver, an immensely capable unit that reflects in every way possible the bold imagination of Sansui's audio engineering. A receiver of medium power, the SEVEN is designed for tonal quality, and since it incorporates an entirely new construction matching the finest characteristics of tuner and amplifier sections, you can expect nothing less than total performance. An unprecedented number of actual listening tests have been performed on the SEVEN to perfect its tonal quality. The unit's major features exemplify Sansui's patient attention to detail. Among them: a sensitive FM frontend utilizing a dual-gated MOS FET and a 4-gang tuning capacitor, a highly selective FM IF amplifier with six ceramic filters and an IC, an FM multiplex circuit with a switching circuit having four choice diodes—16 transistors and LC type carrier leak filters, two tuning meters, a two-stage AM AGC circuit, a three-stage direct-coupled low-noise equalizer, a triple tone control circuit, a completely direct-coupled OCL pure complementary power amplifier with a constant-current driver stage, and a highly reliable relay-equipped protection circuit. For versatility, the SEVEN offers provisions for connecting even new innovations such as a noise reduction adaptor —the latest Dolby, if you choose—and a 4-channel adaptor to upgrade your 2-channel system into a 4-channel unit at a later date. One thing for sure, the SEVEN gives you more than any receiver in its class—and promises you many years of stereo pleasure.

Sansui

The SEVEN for the Seventies: An innovation-packed

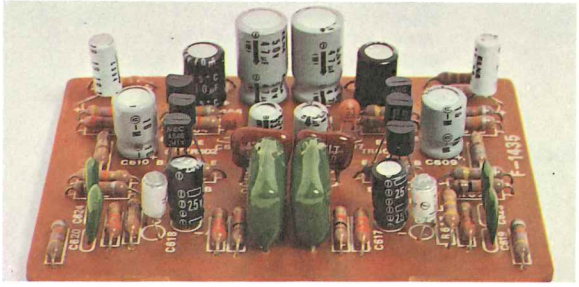


d receiver value

PREAMPLIFIER SECTION

12 THREE-STAGE DIRECT-COUPLED LOW-NOISE EQUALIZER:

The equalizer amplifier is a three-stage direct-coupled system employing three carefully selected low-noise silicon transistors in a unique PNP-NPN-PNP combination. This circuitry realizes excellent linearity and an almost identical facsimile of the RIAA equalizer curve. Other virtues of this feature are a wide dynamic range, high stability, low distortion and a high signal-to-noise ratio.

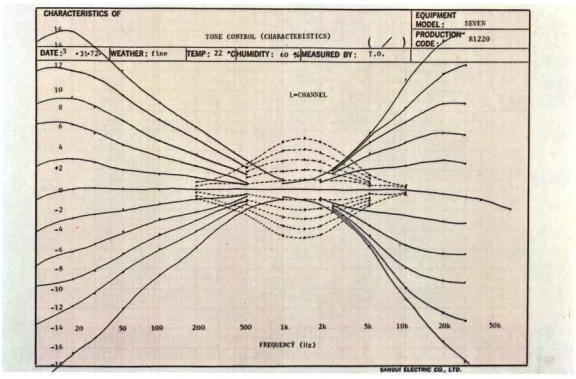


13 MINIMUM DISTORTION AT MAXIMUM RATED INPUT:

An exceptionally high DC supply voltage of 34V, stabilized by a constant-voltage power supply equipped with a 1,000μF big-capacity capacitor and a ripple filter, is applied to the equalizer and tone control circuits to provide for a very wide dynamic range. Sound does not distort even when the phono input signals are at a very high level of 100 millivolts. Another reminder that the SEVEN has been designed totally for tone quality.

14 TRIPLE TONE CONTROLS:

One of the SEVEN's most expensive features, the low-distortion two-stage E-B NF (emitter-to-base negative feedback) tone control circuit provides three tone controls—for bass, midrange and treble. Each of these rotary controls allows for adjustment of the amplifier's response curve in the respective range by ±15dB in steps of 3dB each (for bass and treble) and 1dB (for midrange).



15 PERMITS USE OF TWO TAPE DECKS:

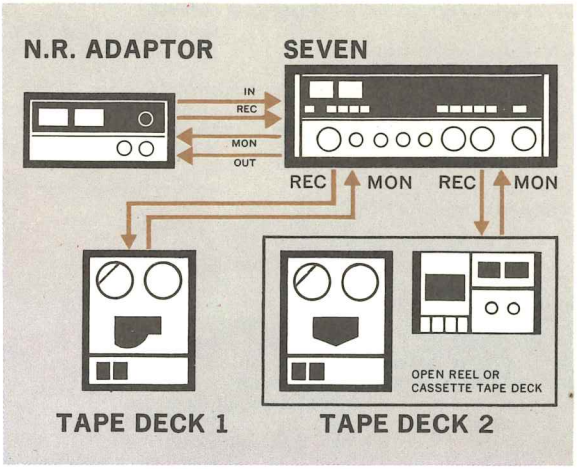
The SEVEN is equipped with two tape monitor circuits, one of which is provided both with rear-panel pin-jack terminals and front-panel phone-type 3-pin jacks. What this means is that two tape decks can be connected to permit recording, playback and monitoring on either. Further, by the use of the new TAPE MONITOR switch, a recorded tape can be copied from one deck to the other. Monitoring a recording, as it is being made, is of course possible on either tape deck.

16 CONNECTS A 4-CHANNEL ADAPTOR:

You may wish to upgrade the SEVEN from 2-channel to 4-channel at a later date. If you do, a specialized set of terminals and a switch stand ready to connect a 4-channel rear amplifier or adaptor. These terminals eliminate the need for reconnecting your tape deck.

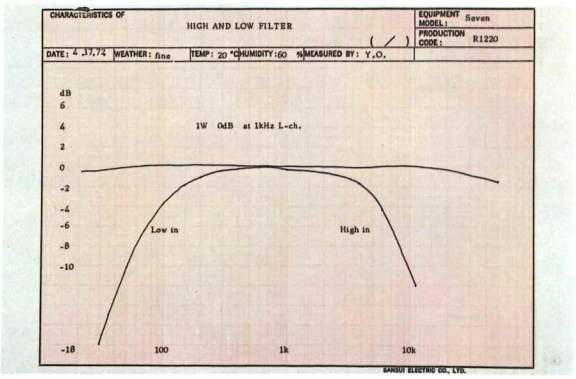
17 CONNECTS A TAPE RECORD/PLAYBACK NOISE REDUCTION ADAPTOR:

So innovative and up-to-date is the SEVEN that it includes terminals for connecting and using a noise reduction adaptor—such as the latest Dolby System—to eliminate annoying hiss and noise that has up until recently been considered unavoidable in tape recording and playback. With the noise reduction adaptor terminal, you may once again bypass disconnecting your tape deck to use the adaptor.



18 NEGATIVE FEEDBACK HIGH AND LOW FILTERS:

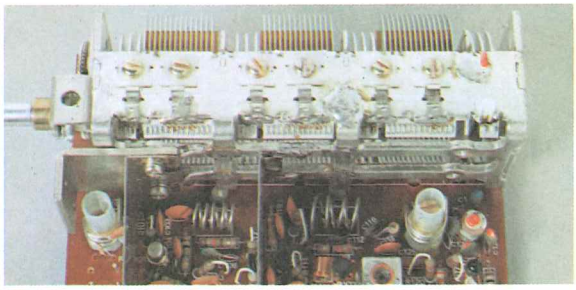
The SEVEN is complete with emitter-follower negative feedback high and low filter circuits utilizing transistors designed exclusively for this purpose. These filter circuits utilize transistors designed exclusively for this purpose. These filter circuits boast a sharp 12dB/oct. cutoff characteristic.



TUNER SECTION

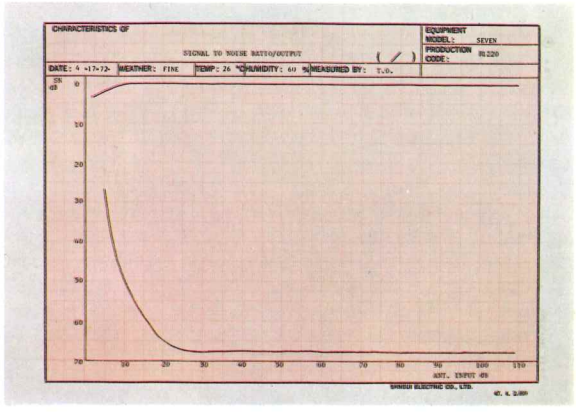
1 SENSITIVE FM FRONTEND WITH DUAL–GATED MOS FET AND 4-GANG TUNING CAPACITOR:

The FM frontend of the SEVEN utilizes low-noise MOS FET (metal oxide semiconductor field effect transistor) along with three expensive silicon transistors and a 4-gang tuning capacitor for its important 2-stage FM RF amplifier and mixer stage. This solid state combination is one of the reasons why the SEVEN offers such outstanding intermodulation distortion and image ratio characteristics. Outstanding sensitivity of 1.8μV is another characteristic of the SEVEN's frontend, a key reason why the tuner section can pull in distant, weak stations with unmatched clarity.



2 QUALITY FM IF AMPLIFIER WITH IC AND SIX CERAMIC FILTERS:

In the heart of the SEVEN's tuner section—the IF amplifier—are ideal characteristics attained by the use of an IC embodying a 3-stage differential amplifier as well as six ceramic filters (3-stage with 2 resonators each) featuring excellent selectivity and skirt characteristic. The result of all this quality is an IHF-rated selectivity of 60dB and capture ratio of 1.5dB. Moreover, you will discover that distortion, separation and phase characteristics of the receiver are nothing but superb during FM stereo reception.



3 LINEAR WIDE FM SCALE:

Use of a precision frequency-linear 4-gang tuning capacitor in the FM frontend has made it possible to graduate the SEVEN's FM scale evenly in steps of 250 kHz for easy, pinpoint tuning. This dial stretches from 88 to 108MHz to facilitate ease-of-tuning. As an additional Sansui bonus, the dial uses scratch-proof, highly transparent smoked glass, and turns to black when the receiver is used for other modes than radio reception. The dial pointer is the self-lighting type, easy-to-see; the dial is contained in an expensive die-cast aluminum frame.

4 MPX SWITCHING CIRCUIT WITH FOUR DIODES AND LC TYPE CARRIER LEAK FILTER:

The SEVEN incorporates a special adjustment-free LC type carrier leak filter with sharp cutoff characteristic. Without this circuit, should the pilot signal contained in FM stereo signals leak into the output, it is likely to cause beat interference with audio signals or, at best, produce intermodulation distortion. It could also cause beat interference with the bias frequency of a tape recorder if the FM multiplex broadcast signal were to be recorded, preventing any quality in the recording. The sharp cut off LC filter combats carrier leakage while making for reduced beat interference and intermodulation distortion.

5 TWO LARGE TUNING METERS:

Pinpoint FM tuning accuracy is assured by the use of two large tuning meters. One indicates the strength of the broadcast signal as it arrives at your antenna, while the other indicates whether the tuner is accurately tuned to the center of the discriminator. For perfect reception, all you do is to adjust for maximum deflection of the signal strength meter while watching that the center tuning meter pointer is brought to dead center.

6 FM MUTING SWITCH:

This switch plays an important role in muting all annoying noise inherent in the FM wave that you perceive between stations as you turn the dial in search of a favorite station.

7 300Ω AND 75Ω ANTENNA TERMINALS:

Fool-proof one-touch connection terminals are provided for connecting both regular 300Ω feeder cable FM antenna and the more powerful 75Ω coaxial cable. The latter is used to connect an outdoor FM antenna where broadcast stations are remote and noise is prevalent.

8 SENSITIVE, SELECTIVE AM TUNER:

In designing the SEVEN, Sansui took great pains to provide superb AM reception, too. Constructed of an RF amplifier with a 3-gang tuning capacitor and an IF amplifier with a two-resonator ceramic filter, it delivers quality AM reception best evidenced by its sensitivity of 46dB/m (200μV/m) and selectivity of 30dB, ±10kHz. Another feature is a special whistle filter employed to eliminate best interference with neighboring stations at night.

9 TWO-STAGE AM AGC CIRCUIT FOR RF AND IF AMPS:

This important Automatic Gain Control circuit governs the AM, RF and IF amplifiers to assure steady-level reception regardless of the strength of the broadcast signal. Thus, even when you switch from a broadcast station in your neighborhood to one located hundreds of miles away, sound volume remains constant.

10 JUMBO SLIDE OUT AM BAR ANTENNA:

The ferrite bar antenna for the SEVEN's AM reception is Sansui's unique slide-out type that features a space-wound coil. The space winding effect increases the effective area of the antenna and allows it to pull in a wider area of reception.

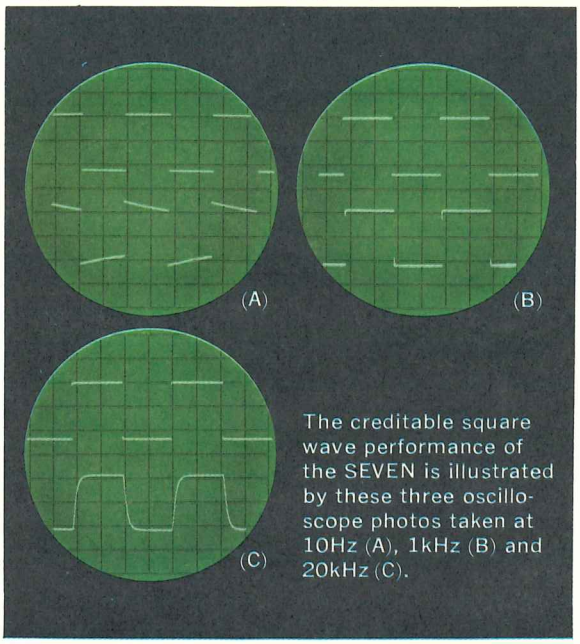
11 SMOOTH TUNING DIAL POINTER:

The tuning dial pointer moves with great smoothness thanks to the use of a large flywheel.

POWER AMPLIFIER SECTION

19 ALL-STAGE DIRECT-COUPLED OCL PURE COMPLEMENTARY CIRCUIT:

The SEVEN's power amplifier adopts an all-stage direct-coupled OCL circuit equipped with two (plus and minus) power supplies, and in the process does away with coupling capacitors and output capacitors. If you compare this circuit with the conventional power amplifier circuit using coupling capacitors between amplifying stages, you find the SEVEN another winner in terms of reduced distortion and a wider power bandwidth. Also, the absence of the output capacitors prevents

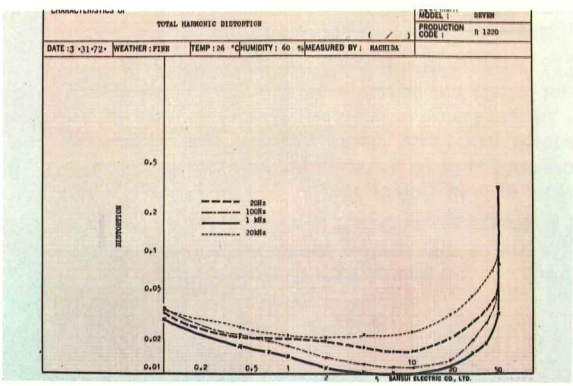


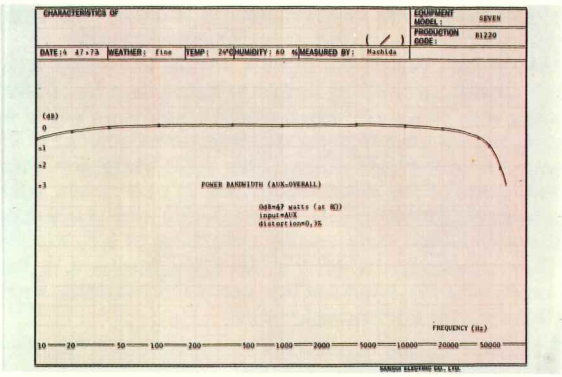
The creditable square wave performance of the SEVEN is illustrated by these three oscilloscope photos taken at 10Hz (A), 1kHz (B) and 20kHz (C).

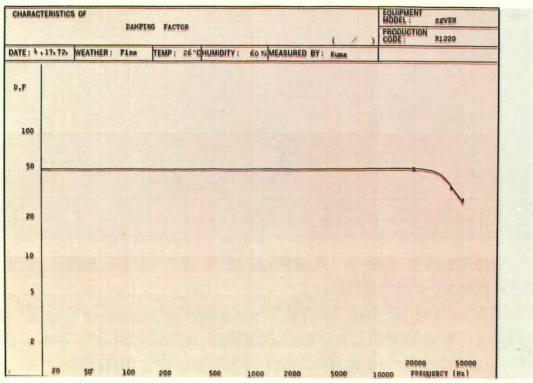
degradation of the amplifier damping factor and resultant deterioration of transient response in the very low frequency range. The output stage of the power amplifier is a pure complementary circuit using NPN and PNP silicon transistors to achieve ideal phase inversion and keep both harmonic distortion and intermodulation distortion minimal at all output levels.

20 DISTORTION-FREE CONSTANT-CURRENT DRIVER AMPLIFIER:

To eliminate crossover distortion and other distortion often heard at low output levels, the driver amplifier stage of the power amplifiers are driven by a special constant-current (high impedance) circuit. Thus, the loudness contour compensation of the SEVEN works with great effectiveness down to the very low output levels.







21 TWO 4,700μF POWER SUPPLY CAPACITORS:

The output stage of the power amplifier employs four bridge rectifiers and two huge 4,700μF capacitors. They contribute to big power characteristics in the SEVEN, including music power of 160 watts (4Ω) and continuous power of 47 watts per channel (8Ω), reproduced free of distortion with ample reserve power.

22 COMPLETE PROTECTION CIRCUIT:

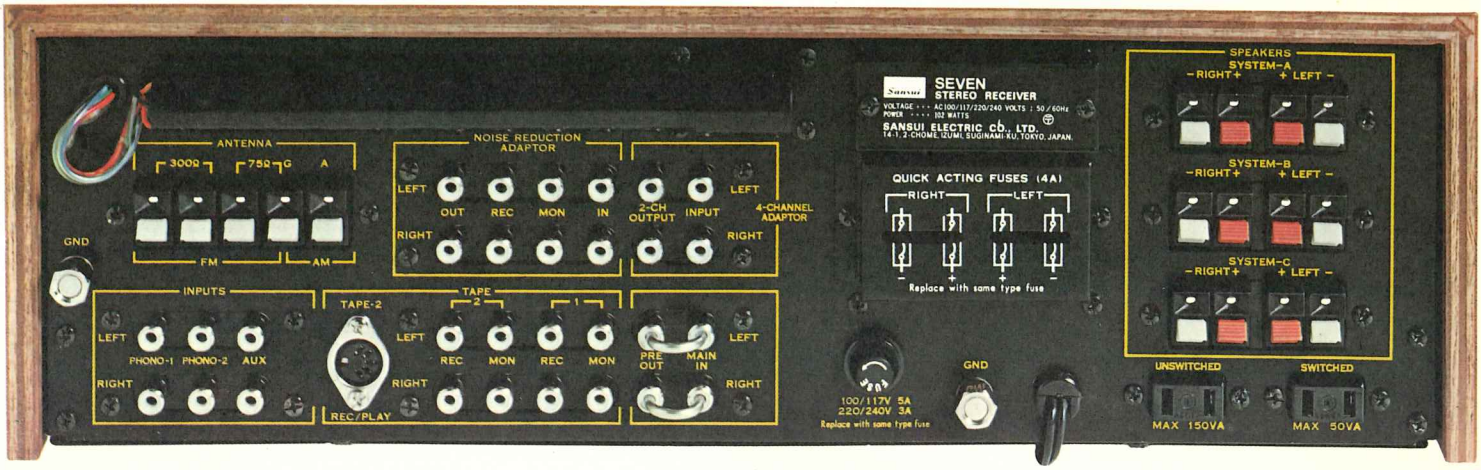
The stability and safety of a direct-coupled amplifier depends upon the effectiveness of temperature compensation and the stable operation of the driver-stage differential amplifier. Included in the SEVEN is a specialized transistor for temperature compensation and a stabilizing circuit used especially for the differential amplifier. In addition, four quick-acting fuses and a newly designed (patent pending) relay circuit are incorporated to protect abnormal current from flowing into your speakers in the event that power transistor (s) are damaged. Once the abnormal condition is corrected, the relay circuit automatically restores itself. And then it also mutes the pop noise generated when the receiver is switched on or off.

23 JUMBO HEAT SINK:

Another feature of the SEVEN is its jumbo heat sink, which works to ensure the safety of the power transistors even when the amplifier is driven for its maximum power output.

OTHER FEATURES:

Loudness Switch for enhanced liveliness at low listening levels; DIN connector socket to simplify connection of tape deck; two large grounding terminals; two convenient AC outlets to power other equipment (one is switched by receiver's power switch);headphone jack for private listening;connects three pairs of speaker systems, with Speaker Selector to choose between A, B, C, A+B, A+C and OFF; easy, foolproof one-touch terminals for connecting speaker systems and antennas.



SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT

IHF MUSIC POWER		160 Watts 4Ω at 1,000Hz 120 Watts 8Ω at 1,000Hz
CONTINUOUS RMS POWER	(each channel driven)	60/60 Watts 4Ω at 1,000Hz 47/47 Watts 8Ω at 1,000Hz
CONTINUOUS RMS POWER	(both channels driven)	41+41 Watts 8Ω at 1,000Hz
CONTINUOUS RMS POWER	(both channels driven at 20 to 20,000Hz)	36+36 Watts 8Ω load
TOTAL HARMONIC DISTORTION		
POWER AMPLIFIER ONLY		less than 0.3% at rated output
PREAMP. ONLY	(PHONO to pre output)	less than 0.2% at rated output
	(AUX to pre output)	less than 0.1% at rated output
OVERALL	(AUX to power output)	less than 0.3% at rated output
INTERMODULATION DISTORTION	(70Hz: 7,000Hz=4:1 SMPTE method)	
POWER AMPLIFIER ONLY		less than 0.3% at rated output
OVERALL	(AUX to power output)	less than 0.3% at rated output
POWER BANDWIDTH (IHF)		10 to 50,000Hz at 8Ω load
FREQUENCY RESPONSE at 1 watt		
OVERALL	(AUX to power output)	15 to 40,000Hz+1dB, −1.5dB
POWER AMPLIFIER ONLY		15 to 40,000Hz+1dB, −1.0dB
DEVIATION of RIAA		+1dB, −1dB (30 to 15,000Hz)
LOAD IMPEDANCE		4 to 16Ω
DAMPING FACTOR		approximately 50 at 8Ω load
CHANNEL SEPARATION	(at rated output 1,000Hz)	
POWER AMPLIFIER ONLY		60dB
OVERALL	(from PHONO)	50dB
OVERALL	(from AUX)	50dB
HUM and NOISE (IHF)		
OVERALL	(from PHONO)	70dB
OVERALL	(from AUX)	80dB
POWER AMPLIFIER ONLY		90dB
INPUT SENSITIVITY and IMPEDANCE	(at rated output 1,000Hz)	
PHONO		2.5mV (50kΩ)
	Max. input capability	100mV at 0.5% distortion
AUX		150mV (50kΩ)
TAPE MONITOR		150mV (50kΩ)
N.R. ADAPTOR		150mV (50kΩ)
4-CH ADAPTOR		150mV (50kΩ)
POWER AMPLIFIER INPUT		800mV (50kΩ)
OUTPUT LEVEL		
TAPE MONITOR	(DIN)	30mV
	Phone type, Pin	150mV
PREAMPLIFIER		800mV
	Max.	4,000mV (at 0.5% distortion)
TONE CONTROLS		
BASS		+15dB, −15dB at 20Hz (3dB step)
MIDRANGE		+5dB, −5dB at 1,500Hz (1dB step)
TREBLE		+15dB, −15dB at 20,000Hz (3dB step)
FILTERS		
LOW		−10dB at 50Hz (12dB/oct.)
HIGH		−10dB at 10,000Hz (12dB/oct.)
LOUDNESS		+10dB at 50Hz, +8dB at 10,000Hz

TUNER SECTION

FM:

TUNING RANGE		88 to 108MHz
SENSITIVITY (IHF)		1.8μv
SIGNAL to NOISE RATIO		better than 63dB
IMAGE FREQUENCY REJECTION		better than 80dB at 98MHz
SPURIOUS RESPONSE REJECTION		better than 100dB
SELECTIVITY		better than 60dB
IF REJECTION		better than 100dB
CAPTURE RATIO		less than 1.5dB
SPURIOUS RADIATION		less than 34dB
TOTAL HARMONIC DISTORTION		
	MONO	less than 0.3%
	STEREO	less than 0.5%
STEREO SEPARATION		better than 40dB at 400Hz
FREQUENCY RESPONSE		30 to 12,000Hz+1dB, −2dB
ANTENNA INPUT IMPEDANCE		300Ω balanced 75Ω unbalanced

AM:

TUNING RANGE		535 to 1605kHz
SENSITIVITY	(Bar Antenna)	46dB/m
SELECTIVITY	(±10kHz)	better than 30dB
IMAGE FREQUENCY REJECTION		better than 100dB/m at 1,000kHz
IF REJECTION		better than 100dB/m at 1,000kHz

GENERAL

SWITCHES and SELECTOR	
TAPE MONITOR 1, 2	OUT, IN
N.R. ADAPTOR	OUT, IN
4-CH ADAPTOR	OUT, IN
LOUDNESS	OFF, ON
FILTERS (HIGH, LOW)	OFF, ON
MODE	STEREO, MONO
FM MUTING	ON, OFF
SPEAKERS	OFF, A, B, C, A+B, A+C
SELECTOR	PHONO-2, PHONO-1, FM AUTO, AM, AUX
SEMICONDUCTORS	Transistors: 74, FET: 1, Diodes: 42, Ze. Diodes: 4, IC: 1
POWER REQUIREMENTS	
POWER VOLTAGE	100, 117, 220, 240V, 50/60Hz
POWER CONSUMPTION	
Max.	310 VA, 250 Watts
Rated	130 VA, 102 Watts
DIMENSIONS	440mm(17⅜″)W×140mm(5⅝″)H ×328mm(13″)D
WEIGHT	14.3kg (31.5 lbs.)

Design and specifications subject to change without notice for improvements.

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